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CLAIMS

What is claimed is:

1. A method of targeted cloning and enrichment of genes and gene clusters by:
directly isolating and subsequent cloning the targeted genes/cluster.
2. The method according to claim 1, wherein said isolating step includes the steps of:
creating a primer containing a target oligonucleotide;
adding the primer to a sample of DNA; and
performing PCR to replicate the genes targeted by the primer.
3. The method according to claim 2, wherein said creating step further includes creating a primer using k-tuple, template derivation and degenerate PCR.
4. The method according to claim 2, wherein said performing step further includes performing degenerate, nested, and temperature gradient PCR.
5. A primer for use in the method of claim 1.
6. The primer according to claim 5, wherein said primer is selected from Table I.
7. A method of isolating trimethoprim coding genes by directly isolating and subsequent cloning the trimethoprim coding gene.
8. The method according to claim 7, wherein said isolating step includes the steps of:
creating a primer containing a target oligonucleotide using a method selected from the group consisting of k-tuple, template derivation and degenerate PCR;

adding the primer to a sample of DNA; and
performing PCR to replicate the trimethoprim coding gene targeted
by the primer.

9. The method according in claim 8, wherein said creating step further includes creating a primer containing a target oligonucleotide coding for DHFR2.
10. Probes for use in the method according to claim 1.
11. The probes according to claim 10, wherein said probes are selected from Table II.
12. Genes cloned by the method according to claim 1.
13. The genes according to claim 12, wherein said genes are selected from Table II.
14. A library formed by the method of claim 1.
15. A method of providing degenerate cloning of an entire family of genes from a mixed DNA sample by directly isolating and subsequent cloning targeted genes/clusters.
16. The method according to claim 15, wherein said isolating step includes the steps of:
 - degenerately cloning a target oligonucleotide,
 - creating a primer containing the target oligonucleotide;
 - adding the primer to a mixed sample of DNA; and
 - performing PCR to replicate the genes targeted by the primer.
17. Genes cloned according to the method of claim 15 for use in affinity purification of genes.
18. The genes according to claim 17, further including using said genes for cloning associated biosynthetic pathway genes.